

WHAT IS CLAIMED IS:

1. A dielectric recording medium, comprising:  
a substrate;  
5 an electrode disposed on the substrate; and  
a dielectric material disposed on the electrode,  
wherein polarization directions of the dielectric material are  
set so as to be aligned in predetermined directions.

10 2. The dielectric recording medium according to claim 1, wherein  
a data area for recording data is formed in the dielectric material,  
and the polarization directions of the dielectric material located  
within the data area are set so as to be aligned in one direction.

15 3. The dielectric recording medium according to claim 1, wherein  
the dielectric recording medium is disc-shaped.

4. The dielectric recording medium according to claim 3, wherein  
the dielectric material is divided into an inner area, an outer area  
20 and a data area, the inner area and the outer area have  
predetermined widths respectively, the data area is located between  
the inner area and the outer area, and polarization directions of each  
of the inner area and the outer area are set in the opposite direction  
to a polarization direction of the data area.

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5. The dielectric recording medium according to claim 1, wherein

the polarization directions of the dielectric material are set by applying an electric field stronger than the coercive electric field of the dielectric material with a parallel electric field application device.

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6. The dielectric recording medium according to claim 1, comprising tracks for recording data thereon.

7. The dielectric recording medium according to claim 6, wherein  
10 the tracks are linear tracks.

8. The dielectric recording medium according to claim 6, wherein the tracks are concentric or spiral tracks.

15 9. The dielectric recording medium according to claim 6, wherein there is provided a space having a predetermined width between two of the tracks.

10. The dielectric recording medium according to claim 1, wherein  
20 the dielectric material comprises two dielectric material layers, one of said two dielectric material layers being located on a first side of the substrate, the other of said two dielectric material layers being located on a second side of the substrate located opposite the first side.

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11. The dielectric recording medium according to claim 1, wherein

said dielectric material is a ferroelectric material.

12. The dielectric recording medium according to claim 11,  
wherein the ferroelectric material is  $\text{LiTaO}_3$ .

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13. The dielectric recording medium according to claim 6,  
comprising a control information area for recording control  
information for controlling a data recording process or a data  
reproducing process in relation to the dielectric recording medium,  
10 the control information area being located at a predetermined  
position of any one of the tracks.

14. The dielectric recording medium according to claim 13,  
wherein the control information is information about tracking.

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15. The dielectric recording medium according to claim 13,  
wherein the control information is information about track address.

16. The dielectric recording medium according to claim 13,  
20 wherein the control information is information about a relative  
movement rate between the dielectric recording medium and a  
recording / reproducing head.

17. A dielectric recording / reproducing apparatus for performing  
25 a data recording process of recording information or data in a  
dielectric recording medium or a data reproducing process of

reproducing information or data recorded in the dielectric recording medium, the dielectric recording medium comprising: a substrate; an electrode disposed on the substrate; a dielectric material disposed on the electrode having polarization domains set so as to be aligned in a predetermined direction; tracks for recording data thereon; and a control information area for recording control information for controlling a data recording process or a data reproducing process in relation to the dielectric recording medium, the control information area being located at a predetermined position of any one of the tracks, the apparatus comprising:

a recording / reproducing head for recording or reproducing the data on the tracks;

a control information detection device for detecting the control information recorded in the control information area on the basis of an output signal of the recording / reproducing head; and

a control device for controlling the data recording process or the data reproducing process on the basis of a detection result of the control information detection device.

18. The dielectric recording / reproducing apparatus according to claim 17, wherein the control information is track address information, and the control device performs address search control of the recording / reproducing head on the basis of the track address information detected by the control information detection device.

19. The dielectric recording / reproducing apparatus according to

claim 17, wherein the control information is information about a relative movement rate between the dielectric recording medium and the recording / reproducing head, and the control device performs relative movement rate control between the dielectric recording medium and the recording / reproducing head on the basis of the control information about the relative movement rate detected by the control information detection device.

20. The dielectric recording / reproducing apparatus according to claim 17, wherein the control device performs tracking control on the basis of an amplitude image level of a reproduction signal outputted from the recording / reproducing head.

21. The dielectric recording / reproducing apparatus according to claim 20, wherein the tracking control is performed by wobbling.

22. The dielectric recording / reproducing apparatus according to claim 20, wherein the tracking control is performed on the basis of a phase of a recording pit included in a tracking pit signal in a reproduction signal outputted from the recording / reproducing head.

23. The dielectric recording / reproducing apparatus according to claim 17, wherein the recording / reproducing head reproduces the information or data recorded in the dielectric material according to a scanning nonlinear dielectric microscopy method.

24. The dielectric recording / reproducing apparatus according to claim 17, wherein the recording / reproducing head is provided with a plurality of recording / reproducing electrodes, each of which is corresponding to the respective one of a plurality of recording tracks.